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## NEW PACIFIC FLYING-FISHES COLLECTED BY TEMPLETON CROCKER

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Mr. Templeton Crocker obtained an excellent series of flying-fishes on the 1934-1935 cruise of his yacht 'Zaca' through the eastern Pacific, made in the interests of the American Museum of Natural History where they are now being studied. Three species of the genus *Cypselurus*, two adult and one a young form, are here described as new.

### *Cypselurus pitcairnsis*, new species

**SPECIFIC CHARACTERS.**—Pectoral almost clear, somewhat darker, smoky along the front border and with a few scattered, small, oval, black spots on its interradiat membranes, of the distal half, which are rarely absent and in one specimen more numerous along the hind edge. Anal (8) 9 or 10. Predorsal scales 27 to 30. Depth in standard length (specimens of 227 to 250 mm.), (5.2) 5.3 to 5.5; eye in head, (2.8) 3 to 3.4. Ventral origin equidistant from hind edge of eye to hind edge of pupil and base of caudal. Head blunt; teeth simple, very small; gill-rakers slender, 20 in all. (Figures in parentheses, for an aberrant specimen with no spots on pectoral.)

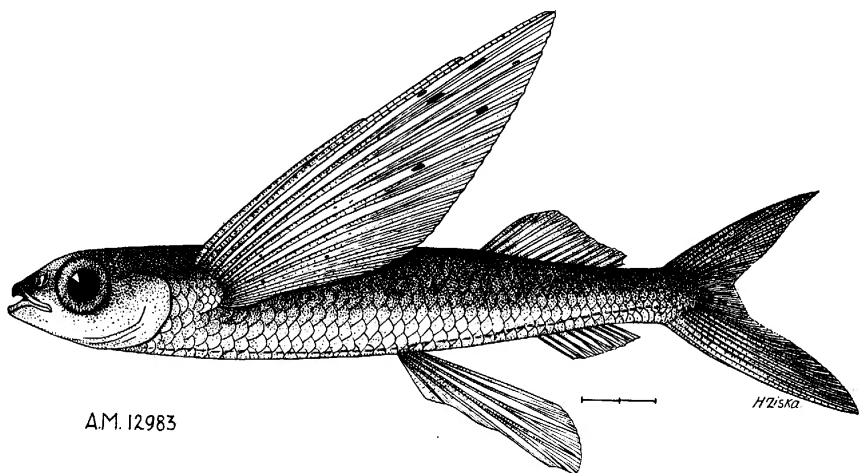


Fig. 1. *Cypselurus pitcairnsis*, type.

DESCRIPTION OF TYPE.—No. 12983, American Museum of Natural History, from Pitcairn Island, collected by Templeton Crocker.

Length to base of caudal, 227 mm. (total 288 mm. est.). Depth in standard length, 5.4; head, 4.1; pectoral, 1.5 (to just past base of last dorsal ray); ventral, 3.2 (to 7th anal ray). Eye in head, 3.2; snout, 3.3; interorbital, 3.2; greatest width of body, 1.6; depth of peduncle, 3.2; its length, 2.4; longest dorsal ray (2nd), 2.2; anal ray (2nd), 3.5; lower caudal lobe (est.), 0.75. Base anal in base dorsal, 1.7.

Dorsal rays,  $12\frac{1}{2}$ ; anal, 9. Scales, 43; predorsal, 27. Head broad; interorbital distinctly concave; eye large, distinctly infralateral.

Dark above to about midline of side; white below; dorsal and anal hyaline, unmarked, the former slightly grayish; caudal uniform dusky; pectorals hyaline, light smoky along outer edge; one with 3, the other with 5 scattered spots on the distal half; ventrals hyaline with two longest rays somewhat dusky, especially proximally.

There are four other specimens with the same data.

#### *Cypselurus angusticeps*, new species

SPECIFIC CHARACTERS.—Pectoral almost uniform grayish, varying in tone but neither hyaline nor blackish, with a narrow pale posterior edge broadening at the tip and toward the axil of the fin. Anal 8 or 9. Predorsal scales 28 to 30. Depth in standard length (specimens 215 to 227 mm.), 5.1 to 5.7; eye in head, 3.3 to 3.6. Ventral origin equidistant from about or behind the middle of opercle and base of caudal. Head narrow and pointed for this genus, the snout equal to or slightly longer than eye. Teeth tricuspid; gill-rakers about  $13 + 4$ .

DESCRIPTION OF TYPE.—No. 12984, American Museum of Natural History, from Nengonengo Island, Tuamotus, November 5, 1934, collected by Templeton Crocker.

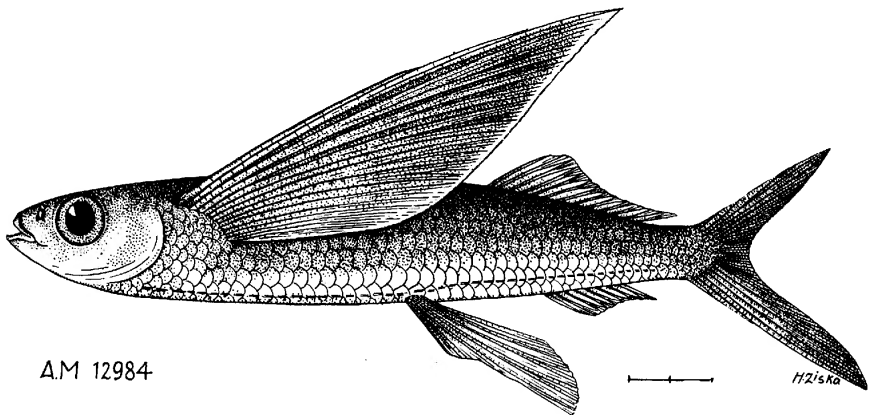


Fig. 2. *Cypselurus angusticeps*, type.

Length to base of caudal, 225 mm. Depth in this length, 5.1; head, 4.1; pectoral, 1.5 (to just past base of last dorsal ray); ventral, 3.8 (to 7th anal ray). Eye in head, 3.4; snout, 3.4; interorbital, 3; greatest width of body, 1.8; depth of peduncle,

3.3; its length (from dorsal axil), 2.1; longest dorsal ray (2nd), 2.5; anal ray (2nd), 3.7; lower caudal lobe (est.), 0.8. Base anal in base dorsal, 2.

Dorsal rays, 13; anal, 9. Scales (est.), 40; predorsal, 28. Head rather narrow and pointed; interorbital slightly concave; eye slightly infralateral.

Dark above to below midline of side, pale below; dorsal very pale grayish; anal white; caudal uniform dusky; ventrals pale becoming slightly dusky in the center of their base.

There are three paratypes of from 215 to 227 mm. in standard length, all from Tatakoto Island, also in the Tuamotus, which agree closely with the type in all essential particulars.

This species differs from *C. bahiensis* in anal count, dorsal and pectoral pattern; from *C. opisthopis* and *C. californicus* in the low scale count and pattern; from *C. oligolepis* and *C. xenopterus* in scalation and pectoral pattern; and from *C. simus* in number of predorsal scales and pectoral pattern. At present one can only speculate about the identity of the young bearded fishes going under the name, *C. narsei* and the non-bearded *C. nigripennis*, the numerical characters of which are not very unlike those of the present species and numerous others.

#### *Cypselurus ventralis*, new species

DESCRIPTION OF TYPE.—No. 13291, American Museum of Natural History, from 10° 01' S., 80° 05' W., March 4, 1935, collected by Templeton Crocker.

Length to base of caudal, 84 mm. (total 108 mm.). Depth in standard length, 6.25; head, 4.8; pectoral, 1.4; ventral, 2.35; lower caudal lobe, 3.1. Eye in head, 3.2; snout, 4.5; interorbital, 2.7; length of barbel, 1.2; width of body, 1.8; length of peduncle, 1.7; its depth, 3.2; highest dorsal ray (4th), 1.7. Anal base in that of dorsal, 1.4.

Dorsal rays, 13½; anal, 11. Scales (from over pectoral origin), about 50.

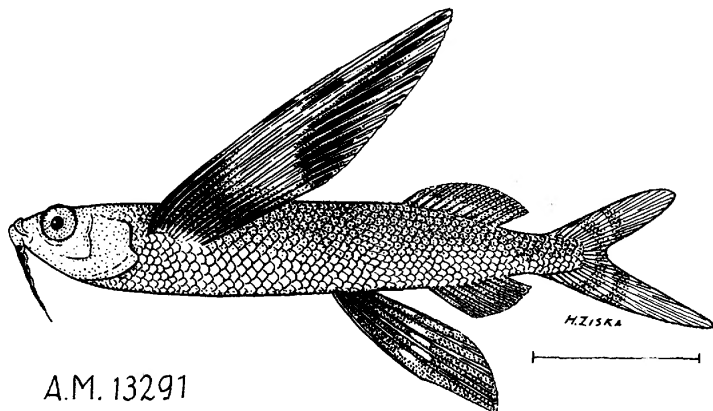


Fig. 3. *Cypselurus ventralis*, type.

Lower jaw strongly projecting; 2 mandibular barbels which reach preopercular edge, with a fluted membrane on their outer side only, becoming broader toward the base. Second pectoral ray branched, second and third the longest. Ventral origin equidistant from base of caudal and middle of preopercle. Anal origin about an eye's diameter behind that of dorsal. Pectoral reaching a little beyond last anal ray; ventrals to about middle of peduncle.

Color above more or less dusky becoming pale at about lateral line, lower parts pale to insertion ventrals, punctulate from there to middle of anal; barbels white at their base, becoming abruptly black on the proximal half, distally white again except for the narrow membrane which is black to the tip. Pectoral banded black and white—narrowly white at the origin, a broad white curved band crossing the fin and extending back along its outer margin much as in *C. furcatus* (Nichols and Breder, 1928, *Zoologica*, VIII (7), p. 447, Fig. 175), a broad curved white band cutting into the posterior margin of the fin, with black on the membrane making a few dark marks across it; ventrals rather uniform dusky, blacker toward the margin, with a row of paler oval interradiial spots crossing the fin near the middle. Dorsal and anal gray; caudal white with two faint gray cross marks on lower lobe.

In a specimen of 55 mm. from off Peru, the barbel equals the length of the head, its distal half including the membrane is white, and the black membrane on the proximal half much broader in comparison (half eye at its widest point). Specimens of about this size have the ventrals almost solid black in color.

This is a well-marked young flying-fish of which we have seven specimens in all, 39 to 84 mm. standard length, two from the type locality, four from 160 miles southwest of Port San Juan, Peru, and one from 7° 55' S., 83° 45' W. Its large black ventral fins are its most striking character and we are at a loss to know of what species it might be the young, unless of *C. xenopterus*, also taken off the Peruvian coast.